REMARKS

Applicant requests reconsideration of the application in view of the foregoing amendments and the discussion that follows. The status of the claims as of this response is as follows: Claims 30-49 are pending, claims 1-29 having been canceled previously. Claims 40-43 have been withdrawn from consideration. Claims 30, 32, 33, 35-38, 44-46 and 48-49 have been amended herein.

The Amendment

The specification was amended to change the title of the application.

Claim 30 was amended to recite that each of the flow cells comprises a chamber and a holder for the support in said chamber and that the support is a strip, a plate or flat glass. Support therefor is in the specification, for example, page 14, lines 18-22, and page 7, lines 1-4. Claim 30 was also amended to recite that the array comprises a plurality of biopolymer features arranged in a pattern on a surface of the support. Support therefor is in the specification, for example, page 9, lines 32-34. Claim 30 was also amended to indicate that the mechanism moves the support to and from the station for monomer addition and a flow cell and moves the support from one flow cell to another flow cell. Support therefor is in the specification, for example, original claim 30. Claim 30 was also amended to recite that the mechanism comprises a robotic arm and a holding element for engaging the support where the holding element comprises a vacuum-activated fork or grasping elements. Support therefor is in the specification, for example, page 22, line 31, to page 23, line 4.

Claim 32 was amended to recite that the grasping elements comprise movable finger-like projections. Support therefor is in the specification, for example, page 23, lines 4-5.

Claim 33 was amended to recite that each of the flow cells comprises at least one inlet and an outlet. Support therefor is in the specification, for example, original claim 33.

Claim 35 was amended to recite that the purification system comprises a chromatographic column. Support therefor is in the specification, for example, page 18, lines 33-34.

Claim 36 was amended to change its dependency to claim 35.

Claim 37 was amended to recite that the sensor determines the condition of a fluid reagent and, based on said determination, communicates with a valve to direct

at least a portion or all of the fluid reagent to the inlet of a flow cell to be combined with fresh fluid reagent or sent to waste. Support therefor is in the specification, for example, page 19, lines 8-11, and page 20, lines 19-26.

Claim 38 was amended in a manner similar to that for claim 37 above.

Claim 44 was amended to recite that the support is a strip, a plate or flat glass. Support therefor is in the specification, for example, page 7, lines 1-4. Claim 44 was also amended to recite that the array comprises a plurality of biopolymer features arranged in a pattern on a surface of the support. Support therefor is in the specification, for example, page 9, lines 32-34. Claim 44 was also amended to indicate that the mechanism moves the support to and from the station for monomer addition and a flow cell and moves the support from one flow cell to another flow cell. Support therefor is in the specification, for example, original claim 44. Claim 44 was also amended to recite that the mechanism comprises a robotic arm and a holding element for engaging said support where the holding element comprises a vacuum-activated fork or grasping elements. Support therefor is in the specification, for example, page 22, line 31, to page 23, line 4.

Claim 45 was amended in a manner similar to that for claim 32 above.

Claim 46 was amended in a manner similar to that for claim 35 above.

Claim 48 was amended in a manner similar to that for claim 37 above.

Claim 49 was amended in a manner similar to that for claim 37 above.

Restriction Requirement

The previous Office Action noted that restriction was required between product and process claims. Applicant acknowledged the indication in the Office Action that, where product claims are elected (such as elected above) and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of M.P.E.P. §821.04. Method claims 40-43 are dependent from apparatus claim 30 and, thus, fulfill the above requirement with respect to withdrawn process claims.

Specification

Applicant believes that the amendment to the title avoids the contention in the Office Action that the previous title was non-descriptive.

Rejection under 35 U.S.C. §112

Claims 30-39 and 44-49 were rejected under the second paragraph of the above code section as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant submits that the amendments to claims 30 and 44 obviate the grounds of rejection set forth in the Office Action.

Rejections under 35 U.S.C. §102

Claims 30-39 and 44-49 were rejected under 35 U.S.C. 102(e) as being anticipated by Kedar (U.S. Patent No. 6,165,778).

Without acquiescing in the arguments in the Office Action regarding the rejection of claim 30, Applicant submits that Kedar does not disclose or suggest the following elements of claim 30: a plurality of flow cells, (i) wherein each of the flow cells comprises a chamber and a holder for a support in the chamber (ii) where the support is a strip, a plate or flat glass and (iii) wherein the array comprises a plurality of biopolymer features arranged in a pattern; a mechanism for moving a support to and from the station for monomer addition and a flow cell and for moving a support from one flow cell to another flow cell, wherein the mechanism comprises (iv) a robotic arm and (v) a holding element for engaging the support.

Kedar's disclosure of a bead support comprising many copies of a peptide and DNA tag sequence is not an array of biopolymers on a support as found in claim 30. The bead support of Kedar is not a strip, plate or flat glass. The array of Kedar is not a plurality of biopolymer features arranged in a pattern on a surface of the support. The beads of the reference have multiple copies of a peptide and a DNA tag sequence. In short, Kedar merely discloses moving beads having a reagent attached thereto to reaction vessels.

Kedar's disclosure of a robotic pipetting instrument for bead transfer does not satisfy the claim element of a mechanism for moving a support to and from the station for monomer addition and a flow cell and for moving a support from one flow cell to another flow cell, wherein the mechanism comprises a robotic arm and a holding element for engaging the support.

Claim 31 depends from claim 30, which is patentable over Kedar as demonstrated above. Claim 31 is, therefore, patentable over Kedar by virtue of such dependency.

Kedar does not disclose of suggest a holding element comprising grasping elements that comprise finger-like projections as recited in claim 32. Therefore, claim 32 is patentable over the Kedar reference.

Claim 33 depends from claim 30, which is patentable over Kedar as demonstrated above. Claim 33 is, therefore, patentable over Kedar by virtue of such dependency.

Claim 34 depends from claim 30, which is patentable over Kedar as demonstrated above. Claim 34 is, therefore, patentable over Kedar by virtue of such dependency. Furthermore, if top manifold 212 of Kedar corresponds to the "further comprising a manifold" of claim 34, then the apparatus lacks a fluid dispensing station as required in the independent claim 30, from which claim 34 depends.

Claim 35 is directed to the apparatus of claim 30 further comprising a purification system in fluid communication with the outlet wherein the purification system comprises a chromatographic column. The frit or filter 1102 of Kedar does not disclose or suggest such a feature. Claim 35, therefore, is patentable over the Kedar reference.

Claim 36 depends ultimately from claim 30, which is patentable over Kedar as demonstrated above. Claim 36 is, therefore, patentable over Kedar by virtue of such dependency.

Kedar does not disclose or suggest an apparatus as claimed in claim 37, which recites that the sensor determines the condition of a fluid reagent and, based on said determination, communicates with a valve to direct at least a portion or all of the fluid reagent to the inlet of a flow cell to be combined with fresh fluid reagent or sent to waste. The sensor in Kedar merely senses a level of liquid.

Claim 38 is patentable over Kedar for the reasons set forth above with regard to the rejection of claim 37 over Kedar.

Claim 39 depends ultimately from claim 30, which is patentable over Kedar as demonstrated above. Claim 39 is, therefore, patentable over Kedar by virtue of such dependency.

Claim 44 is patentable over Kedar for the reasons set forth above with regard to the rejection of claims 30 and 35 over Kedar.

Claim 45 is patentable over Kedar for the reasons set forth above with regard to the rejection of claim 32 over Kedar.

Claim 46 is patentable over Kedar because the reference does not disclose or

suggest a purification system that comprises a chromatographic column.

Claim 47 depends ultimately from claim 44, which is patentable over Kedar as demonstrated above. Claim 47 is, therefore, patentable over Kedar by virtue of such dependency.

Claim 48 is patentable over Kedar for the reasons set forth above with regard to the rejection of claim 37 over Kedar.

Claim 49 is patentable over Kedar for the reasons set forth above with regard to the rejection of claim 37 over Kedar.

Obviousness-type Double Patenting

Claims 30-39 and 44-49 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-33 of U.S. Patent No. 6,713,023 (Bass). The Office Action contends that, although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to flow cell devices comprising a flow cell housing a substrate, fluid dispensing stations, monomer addition stations, means for mechanically moving the support. The claim sets, asserts the Office Action, merely differ in that the instantly claimed device comprises a plurality of flow cells.

Applicant respectfully traverses the above rejection. Claim 1 of Bass, for example, is directed to a flow device comprising: (a) a housing comprising a housing chamber, (b) an opening in the housing adapted for insertion of a support into the housing chamber, (c) a sealing member movably mounted in the housing chamber and adapted to engage the support to form a reagent chamber between a surface of the support and a surface of the sealing member, (d) a mechanism for moving the sealing member within the housing chamber, (e) a mechanism adapted to engage and hold the support, during the insertion, on a surface opposite the surface engaged by the sealing member and, in cooperation with the mechanism of step (d), to move the support engaged by the sealing member within the housing chamber, (f) an inlet in fluid communication with the reagent chamber and (g) an outlet in fluid communication with the reagent chamber.

On the other hand, claim 30, for example, of the present application is directed to an apparatus comprising: (a) a plurality of flow cells, wherein each of the flow cells comprises a chamber and a holder for the support in the chamber and wherein the support is a strip, a plate or flat glass and wherein the array comprises a

plurality of biopolymer features arranged in a pattern on a surface of the support, (b) one or more fluid dispensing stations in fluid communication with one or more of the plurality of flow cells, (c) a station for monomer addition to the surface of the support, and (d) a mechanism for moving a support to and from the station for monomer addition and a flow cell and for moving a support from one flow cell to another flow cell, wherein the mechanism comprises a robotic arm and a holding element for engaging the support and wherein the holding element comprises a vacuum-activated fork or grasping elements.

The Office Action recognizes that the apparatus of claim 30, which comprises, among others, a plurality of flow cells, differs from the device of claim 1 of Bass. This distinction is dismissed in the Office Action, which contends that both sets of claims are drawn to flow cell devices comprising a flow cell housing a substrate, fluid dispensing stations, monomer addition stations, means for mechanically moving the support.

Applicant has reviewed claims 1-33 of Bass and is unable to find any disclosure in claims 1-33 of fluid dispensing stations and monomer addition stations. The claims of Bass are directed to flow devices, which may be formed *in situ*. The claims of the present application, on the other hand, are directed to apparatus for synthesizing an array of biopolymers on the surface of a support where the apparatus include a plurality of flow cells, one or more fluid dispensing stations, a station for monomer addition, and so forth. The claims of Bass do not suggest the apparatus of claim 30 and those claims depending therefrom.

Furthermore, in addition to the elements mentioned above with regard to claims 30-39, claims 1-33 of Bass do not suggest the purification system of the apparatus of claims 35-37 and 44-49. There is nothing in the claims of Bass that is suggestive of this element of Applicant's claims.

Claims 30-39 and 44-40 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-28 of copending Application No. 10/ 172,470 (Remick). The Office Action contends that the claim sets merely differ in that the claims of Remick are further drawn to a vacuum source. However, asserts the Office Action, the instant claim language "comprising" encompasses the additional element of the Remick claims.

Without acquiescing in the above rejection, Applicant submits that claims 23-28 of Remick, at the very least, fail to suggest the purification system of the

apparatus of claims 35-37 and 44-49. In addition, the claims of Remick are not suggestive of the apparatus of the instant claims merely because the instant claims use "comprising" terminology.

Furthermore, the rejection over Remick is a provisional obviousness-type double patenting rejection because the conflicting claims of Remick have not in fact been patented. Accordingly, this provisional rejection can only be effective at the issuance of a patent for the Remick application. Applicant will review his options with regard to a terminal disclaimer and the like at the time of an indication of allowance in the Remick application or in the present application.

Conclusion

Claims 30-39 and 44-49 satisfy the requirements of 35 U.S.C. §§112 and 102 and do not circumscribe the judicially created doctrine of obviousness-type double patenting. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,

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